

Notice of Allowability

Application No.

10/621,562

Examiner

Nhan T. Tran

Applicant(s)

YAMASHITA ET AL.

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed on 7/18/2003 & phone interview on 10/30/2006.
2. ☒ The allowed claim(s) is/are 1-8.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 7/18/2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

EXAMINER'S AMENDMENT

3. Authorization for this examiner's amendment was given in a telephone interview with Garth Dahlen on 10/30/2006.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows: (note that the amendment is shown in strikethrough)

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Regarding **claim 1**, in lines 20-21 of claim 1, the limitations "and extending round one array of said photosensitive cells each," have been amended as -- **and extending round one array of said photosensitive cells each,--**.

Allowable Subject Matter

4. Claims 1-8 allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 1, the prior art of record fails to teach or fairly suggest the combination of all limitations required in claim 1 that includes "...each of said plurality of photosensitive cells having a photosensitive area divided into at least two photosensitive regions, each of the photosensitive cells around a given photosensitive being shifted from the given photosensitive cell by substantially half a pitch which is defined as a distance between the photosensitive cells adjoining each other in the horizontal or the vertical direction, each two of said plurality of vertical transfer paths being formed between said photosensitive cells arranged in the horizontal direction, and extending round one array of said photosensitive cells each,... a parameter determining circuit for using a quantity of light incident during an exposure time and determining whether or not the values with the predetermined format are adequate, said parameter determining circuit weighting, if the values area adequate, the values to produce an amount of exposure, thereby determining exposure parameters for picking up the desired scene."

Regarding independent claim 5, the prior art of record also fails to teach or fairly suggest the combination of all limitations required in claim 5 that includes “...**each of said plurality of photosensitive cells has a photosensitive area divided into a plurality of photosensitive regions, the photosensitive cells around a given photosensitive cell each are shifted from the given photosensitive cell by substantially half a pitch** which is defined as a distance between the photosensitive cells adjoining each other in the horizontal or the vertical direction;... a fifth step of determining whether or not the exposure in each of a plurality of photometry zones where said photosensitive cells are arranged is adequate; **a sixth step of correcting, if the exposure is not adequate, the parameters used for the photometry; and a seventh step of executing, if the exposure is adequate, a weighting operation with a result of the photometry to thereby determine exposure parameters for picking up the desired scene; said third step to said fifth step being repeated after said sixth step.**”

Regarding claims 2-4, these claims are allowed as being directly or indirectly dependent from claim 1.

Regarding claims 6-8, these claims are allowed as being directly or indirectly dependent from claim 5.

Following is closest prior arts found:

Oda (US 6,831,692 B1) discloses a solid-state image pickup apparatus includes color separating filters for separating incident light representative of a scene into color components. Photosensitive cells are arranged in rows and columns each for

receiving a particular color component and outputting a corresponding signal charge.

The photosensitive cells are classified into a first and a second group respectively having first sensitivity and second sensitivity lower than the first sensitivity. The photosensitive cells of the first group adjoin the photosensitive cells of the second group with their geometric centers being shifted from those of the photosensitive cells of the second group by one half of a pitch with respect to arrangement in the direction of rows and/or the direction of columns.

Sekine (US 4,602,289) discloses a solid-state image pick-up device which comprises a first group of photosensitive pixels formed on a semiconductor substrate of one conductivity type and arranged in a first two-dimensional matrix form, each of the pixels of the first group inclined by 45 degree with respect to a horizontal direction; a second group of photosensitive pixels vertically offset from the first group of photosensitive pixels by a distance corresponding to about half a vertical pixel pitch, horizontally offset from the first group of photosensitive pixels by a distance corresponding to a horizontal dimension of each pixel, and having oblique gaps between obliquely adjacent ones of the pixels arranged in the matrix forms, each pixel of the second group being inclined by 45 degree with respect to the horizontal direction; and a plurality of vertical registers arranged to extend in the oblique gaps and gaps between vertically adjacent ones of the pixels of each of the columns of the pixels.

Shinohara (US 7,116,367 B2) discloses a solid-state image pickup apparatus that comprises a unit pixel 44 includes two photodiodes adjacent in the column

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direction. Since the photodiodes are independent, the unit pixel 44 corresponds to two pixels of the image pickup apparatus. Signal charges accumulated in the two photodiodes are transferred to the gate portion of a common amplification MOS transistor 3. As in FIG. 1, a pixel output line 8 of each column is connected to the gate of a reset MOS transistor 5 of each pixel of that column. As in FIG. 1, the drain of the reset MOS transistor 5 and that of the amplification MOS transistor 3 are commonly connected. In the matrix layout of the photodiodes, one reset & power supply line is prepared every two rows. Outputs 18-1, 18-2, 18-3, and 18-4 of a vertical shift register 17 select the photodiodes of the first, second, third, and fourth rows for a read-out, respectively.

Goto (US 6,982,759 B2) discloses a solid-state imaging device comprising an imaging area having unit cells, a vertical driving circuit, signal processing circuits, a horizontal driving circuit, and an output circuit. Each of the unit cells including first and second photoelectric conversion/storage sections, first and second charge readout circuits, a potential detecting circuit, a reset circuit, and an address circuit. The solid-state imaging device has a first operation mode in which the first and second charge readout circuits are driven at substantially the same timing by the vertical driving circuit, the charges stored in the first and second photoelectric conversion/storage sections are transferred to and added together in the charge detecting section, and the potential detecting circuit detects the added charges, generates and transmits a potential corresponding to an amount of detected charges to the vertical signal line, and outputs the potential from the output circuit via the signal processing circuits.

Harada Koichi (JP 09-205589) discloses an image pickup device in which each light receiving section 1 is divided into two light receiving areas 12a, 12b whose sensitivity differs from each other, among signal charges read from the two light receiving areas 12a, 12b of each light receiving section 1, signal charges of the light receiving areas with the same sensitivity in adjacent light receiving sections are mixed in vertical transfer registers 2-1-2-n and the mixed charges are transferred vertically and the signal charges in the light receiving areas with different sensitivity are transferred separately horizontally while being distributed to two horizontal transfer registers 3, 4 by a distribution transfer gate 5, the charges are converted into a signal voltage by charge detection sections 6, 7 and the converted voltage is fed to an external signal processing circuit 30, in which the signal with higher sensitivity is clipped and the resulting signal is added to a signal at a lower sensitivity to obtain a video signal output.

Yoshimura et al. (US 6,570,620 B1) discloses an exposure control device, wherein the operating modes of the device includes a first light measuring mode in which a quantity of light is measured on the basis of the average video signal level of the whole image sensing plane, a second light measuring mode in which the light quantity is measured with weight attached to a video signal part obtained from the inside of the light measuring area, and a third light measuring mode in which the light quantity is measured with weight attached to the video signal of the light measuring area by shifting the light measuring area to trace the object. The three light measuring modes are adaptively switched from one over to another.

Haruki et al. (US 5,111,301) discloses an automatic exposure adjusting apparatus for use in a video camera automatically adjusts exposure based on a video signal obtained from an image sensing circuit. The automatic exposure adjusting apparatus detects a luminance signal level of the video signal and detects a first mean value which is a simple mean value per unit area of an image sensed picture. The automatic exposure adjusting apparatus also outputs a second mean value weighted every area in accordance with a luminance distribution in the image sensed picture. The automatic exposure adjusting apparatus controls the adjustment of exposure based on the first and second mean values. Such weighting of the luminance level in accordance with the luminance distribution is carried out based on the fuzzy inference.

Takahashi et al. (US 6,630,960) discloses an image pickup device capable of exposure control utilizing the iris aperture, shutter speed and gain as three control parameters, comprising means for setting a photometry area in the image frame; means for setting an input parameter as a reference for evaluation, based on the luminance information in an image signal obtained from the photometry means; means for determining the values of the three control parameters for exposure control, according to the value of the input parameter; switch means for switching, according to the phototaking mode, a program setting the control characteristics of each control parameter as a function of the input parameter; and photometry area switch means for switching the set state of the photometry area in the image frame, in linkage with the switching operation of the switch means, wherein the

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phototaking mode is switched according to the phototaking conditions, thereby controlling the parameters and the light metering area according to a program matching the phototaking mode, and enabling to constantly affect the optimum phototaking operation under any phototaking situation or conditions.

However, none of the above references teaches or fairly suggest, either alone or in combination, the combination of all limitations required in each of claims 1 and 5 as stated above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

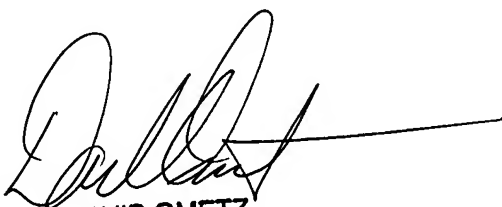
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NT.

NHAN T. TRAN

Patent Examiner



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SUPERVISORY PATENT EXAMINER